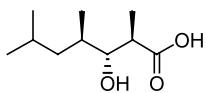


Stereochemistry abstracts

Angela Zampella and Maria Valeria D'Auria\*

Tetrahedron: Asymmetry 13 (2002) 1237



C<sub>10</sub>H<sub>20</sub>O<sub>3</sub>

(2R,3R,4R)-3-Hydroxy-2,4,6-trimethyl-heptanoic acid

E.e. = 100%

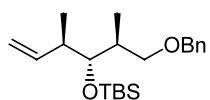
[ $\alpha$ ]<sub>D</sub> = +14.9 (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: 2*R*,3*R*,4*R*

Angela Zampella and Maria Valeria D'Auria\*

Tetrahedron: Asymmetry 13 (2002) 1237



C<sub>21</sub>H<sub>36</sub>O<sub>2</sub>Si

(2*S*,3*R*,4*R*)-1-*O*-Benzyl-3-*O*-(*tert*-butyldimethylsilyl)-2,4-dimethyl-5-hexen-1,3-diol

E.e. = 100%

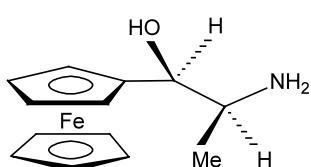
[ $\alpha$ ]<sub>D</sub> = -4.3 (*c* 2.2, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: 2*S*,3*R*,4*R*

Thierry Brunin, Jérôme Cabou, Stéphanie Bastin, Jacques Brocard and Lydie Pélinski\*

Tetrahedron: Asymmetry 13 (2002) 1241



C<sub>13</sub>H<sub>17</sub>FeNO

(1*S*,2*S*)-2-Amino-1-ferrocenyl-1-propanol

E.e. = 100%

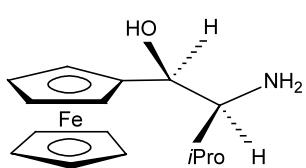
[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +74.0 (*c* 1.04, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*

Thierry Brunin, Jérôme Cabou, Stéphanie Bastin, Jacques Brocard and Lydie Pélinski\*

Tetrahedron: Asymmetry 13 (2002) 1241



C<sub>15</sub>H<sub>21</sub>FeNO

(1*S*,2*S*)-2-Amino-1-ferrocenyl-3-methyl-1-butanol

E.e. = 100%

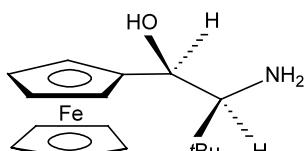
[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +93.4 (*c* 0.54, CHCl<sub>3</sub>)

Source of chirality: commercially available L-valinol

Absolute configuration: 1*S*,2*S*

Thierry Brunin, Jérôme Cabou, Stéphanie Bastin, Jacques Brocard  
and Lydie Pélinski\*

*Tetrahedron: Asymmetry* 13 (2002) 1241



C<sub>16</sub>H<sub>23</sub>FeNO  
(1*S*,2*S*)-2-Amino-1-ferrocenyl-3,3-dimethyl-1-butanol

E.e. = 100%

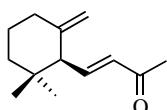
[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +173.7 (*c* 0.244, CHCl<sub>3</sub>)

Source of chirality: commercially available L-*tert*-leucinol

Absolute configuration: 1*S*,2*S*

Stephen Beszant, Elios Giannini, Giuseppe Zanoni  
and Giovanni Vidari\*

*Tetrahedron: Asymmetry* 13 (2002) 1245



C<sub>13</sub>H<sub>20</sub>O  
(*S*)- $\gamma$ -Ionone

E.e. 88% (GC)

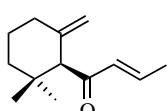
[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +30.3 (*c* 1.1, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (*S*)

Stephen Beszant, Elios Giannini, Giuseppe Zanoni  
and Giovanni Vidari\*

*Tetrahedron: Asymmetry* 13 (2002) 1245



C<sub>13</sub>H<sub>20</sub>O  
(*S*)- $\gamma$ -Damascone

E.e. 87.5% (HPLC)

E:Z = 24.4:1

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +230 (*c* 1.40, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (*S*)

Stephen Beszant, Elios Giannini, Giuseppe Zanoni  
and Giovanni Vidari\*

*Tetrahedron: Asymmetry* 13 (2002) 1245



C<sub>10</sub>H<sub>14</sub>O<sub>2</sub>  
(1*R*,5*S*)-Karahana lactone

E.e. 96.7% (GC)

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +260.5 (*c* 0.90, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (1*R*,5*S*)



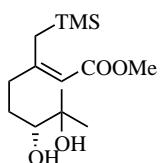
C<sub>10</sub>H<sub>16</sub>O  
(1*R*,5*S*)-Karahana ether

E.e. 96.7% (GC)

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +76.6 (*c* 0.88, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (1*R*,5*S*)



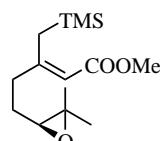
C<sub>14</sub>H<sub>28</sub>O<sub>4</sub>Si  
Methyl (6*R*)-(Z)-6,7-dihydroxy-7-methyl-3-(trimethylsilyl)methyl-2-octenoate

E.e. 88% (Mosher esters)

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -7.50 (*c* 1.1, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: Sharpless asymmetric dihydroxylation

Absolute configuration: (*R*)



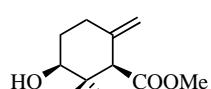
C<sub>14</sub>H<sub>26</sub>O<sub>3</sub>Si  
Methyl (6*S*)-(Z)-6,7-epoxy-7-methyl-3-(trimethylsilyl)methyl-2-octenoate

E.e. 88%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +0.52 (*c* 2.78, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (*S*)



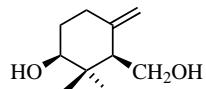
C<sub>11</sub>H<sub>18</sub>O<sub>3</sub>  
Methyl (2*S*,6*R*)-(+)-cis-2-hydroxy-γ-cyclogeraniate

E.e. 88%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +109 (*c* 0.78, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (2*S*,6*R*)



C<sub>10</sub>H<sub>18</sub>O<sub>2</sub>

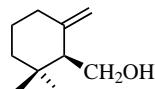
(2S,6R)-(+)-cis-2-Hydroxy- $\gamma$ -cyclogeraniol

E.e. 88%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +46.6 (c 1.02, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (2S,6R)



C<sub>10</sub>H<sub>18</sub>O

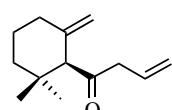
(S)-(+)- $\gamma$ -Cyclogeraniol

E.e. 88%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +24.9 (c 0.73, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (S)



C<sub>13</sub>H<sub>20</sub>O

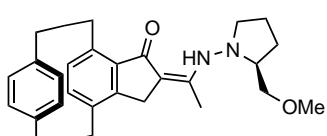
(S)-1-(2',2'-Dimethyl-6'-methylene-1'-cyclohexyl)-but-3-en-1-one (+)-23

E.e. 88%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +290 (c 1.11, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: enantioselective synthesis

Absolute configuration: (S)



C<sub>28</sub>H<sub>34</sub>N<sub>2</sub>O<sub>2</sub>

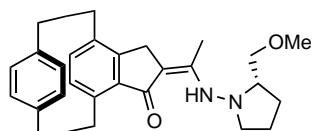
(S,S)-(-)-(2Z)-2-{[2-(Methoxymethyl)-pyrrolidin-1-yl]amino}ethylidene-2,3,6,11,12,13-hexahydro-1H,5H-4,14-ethanediylidene-7,10-ethenocyclopenta[13]annulen-1-one

D.e. >98%

[ $\alpha$ ]<sub>D</sub> = -95 (c 0.61, CHCl<sub>3</sub>)

Source of chirality: reaction with SAMP

Absolute configuration: S,S



C<sub>28</sub>H<sub>34</sub>N<sub>2</sub>O<sub>2</sub>

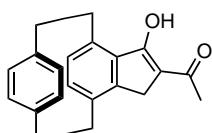
(R,S)-(-)-(2Z)-2-(1-{[2-(Methoxymethyl)-pyrrolidin-1-yl]amino}ethylidene)-2,3,6,11,12,13-hexahydro-1H,5H-4,14-ethanediylidene-7,10-ethenocyclopenta[13]annulen-1-one

D.e. >70%

[ $\alpha$ ]<sub>D</sub> = -110 (*c* 0.42, CHCl<sub>3</sub>)

Source of chirality: reaction with SAMP

Absolute configuration: *R,S*



C<sub>22</sub>H<sub>22</sub>O<sub>2</sub>

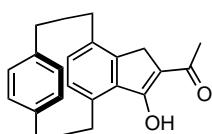
(S)-(+)-1-(3-Hydroxy-5,6,11,12-tetrahydro-1H-4,13:7,10-diethenocyclopenta[12]annulen-2-yl)ethanone

E.e. >98%

[ $\alpha$ ]<sub>D</sub> = +155 (*c* 0.48, CHCl<sub>3</sub>)

Source of chirality: resolution with SAMP

Absolute configuration: *S*



C<sub>22</sub>H<sub>22</sub>O<sub>2</sub>

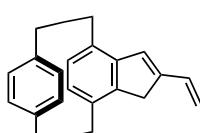
(R)-(-)-1-(3-Hydroxy-5,6,11,12-tetrahydro-1H-4,13:7,10-diethenocyclopenta[12]annulen-2-yl)ethanone

E.e. >70%

[ $\alpha$ ]<sub>D</sub> = -108 (*c* 0.55, CHCl<sub>3</sub>)

Source of chirality: resolution with SAMP

Absolute configuration: *R*



C<sub>22</sub>H<sub>22</sub>

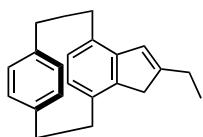
(S)-(+)-2-Vinyl-5,6,11,12-tetrahydro-1H-4,13:7,10-diethenocyclopenta[12]annulene

E.e. >98%

[ $\alpha$ ]<sub>D</sub> = +225 (*c* 0.19, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-1-(3-hydroxy-5,6,11,12-tetrahydro-1H-4,13:7,10-diethenocyclopenta[12]annulen-2-yl)ethanone

Absolute configuration: *S*



C<sub>22</sub>H<sub>24</sub>

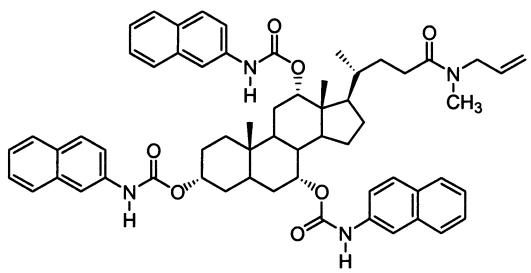
(S)-(+)-2-Ethyl-6,11,12,13-tetrahydro-3H,5H-4,14-ethanediylidene-7,10-ethenocyclopenta[13]annulene

E.e. >98%

[ $\alpha$ ]<sub>D</sub> = +235 (*c* 0.39, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-1-(3-hydroxy-5,6,11,12-tetrahydro-1*H*-4,13:7,10-diethenocyclopenta[12]-annulen-2-yl)ethanone

Absolute configuration: *S*

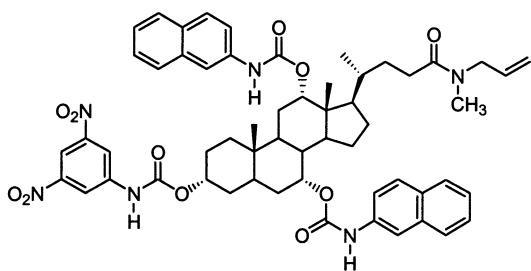


C<sub>61</sub>H<sub>68</sub>N<sub>4</sub>O<sub>7</sub>

*N*-Allyl-*N'*-methyl-3,7,12-tris(2-naphthyl)carbamoyloxycholan-24-amide

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +118.3 (*c* 1.01; CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: natural source

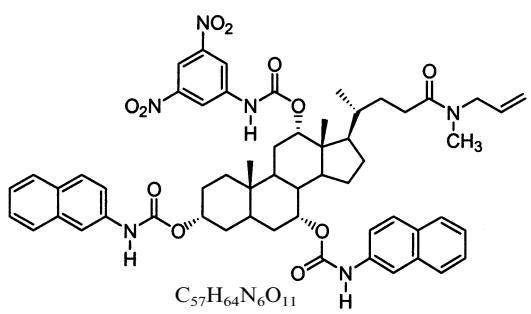


C<sub>57</sub>H<sub>64</sub>N<sub>6</sub>O<sub>11</sub>

*N*-Allyl-*N'*-methyl-3-(3,5-dinitrophenyl)carbamoyloxy-7,12-bis(2-naphthyl)carbamoyloxy-cholan-24-amide

[ $\alpha$ ]<sub>D</sub><sup>21</sup> = +87.3 (*c* 0.99; CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: natural source

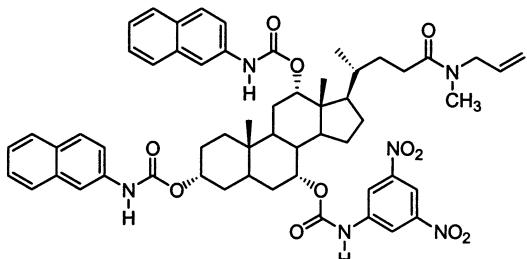


C<sub>57</sub>H<sub>64</sub>N<sub>6</sub>O<sub>11</sub>

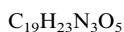
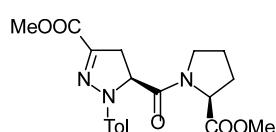
*N*-Allyl-*N'*-methyl-3,7-bis(2-naphthyl)carbamoyloxy-12-(3,5-dinitrophenyl)carbamoyloxycholan-24-amide

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = +63.1 (*c* 0.91; CH<sub>2</sub>Cl<sub>2</sub>)

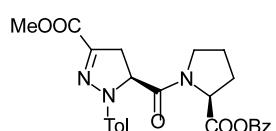
Source of chirality: natural source

*N*-Allyl-*N'*-methyl-3,12-bis(2-naphthyl)carbamoyloxy-7-(3,5-dinitrophenyl)carbamoyloxycholan-24-amide $[\alpha]_D^{23} = +95.2$  (*c* 0.93;  $\text{CH}_2\text{Cl}_2$ )

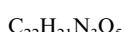
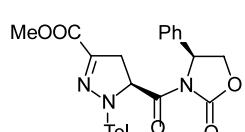
Source of chirality: natural source

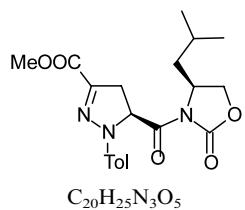
1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*S*)-[1-(2-(*S*)-methoxycarbonyl)pyrrolidino]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -180.0$  (*c* 0.25,  $\text{CHCl}_3$ )

Source of chirality: L-proline methyl ester

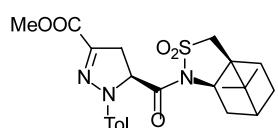
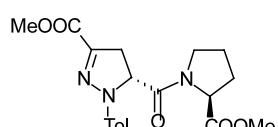
Absolute configuration: 5*S*1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*S*)-[1-(2-(*S*)-benzyloxycarbonyl)pyrrolidino]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -248.0$  (*c* 0.24,  $\text{CHCl}_3$ )

Source of chirality: L-proline benzyl ester

Absolute configuration: 5*S*1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*S*)-[1-(2-oxo-5-(*S*)-phenyl-4,5-dihydro)oxazolo]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = +221.4$  (*c* 0.11,  $\text{CHCl}_3$ )Source of chirality: 4-(*S*)-(+) -phenyl-2-oxazolidinoneAbsolute configuration: 5*S*



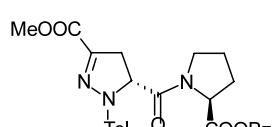
1-(4-Methylphenyl)-3-methoxycarbonyl-5-(S)-[1-(2-oxo-5-(S)-isobutyl-4,5-dihydro)oxazolo]carbonyl-4,5-dihydropyrazole

 $[\alpha]_D^{25} = +356.0$  (*c* 0.19, CHCl<sub>3</sub>)Source of chirality: 4-(*S*)-(+)*-isobutyl-2-oxazolidinone*Absolute configuration: 5*S*1-(4-Methylphenyl)-3-methoxycarbonyl-5-(S)-[N-(1*S*,2*R*)-2,10-camphorsultamo]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -8.6$  (*c* 1.85, CHCl<sub>3</sub>)Source of chirality: (1*S*,2*R*)(-)2,10-camphorsultamAbsolute configuration: 5*S*

1-(4-Methylphenyl)-3-methoxycarbonyl-5-(R)-[1-(2-(S)-methoxycarbonyl)pyrrolidino]carbonyl-4,5-dihydropyrazole

 $[\alpha]_D^{25} = +80.4$  (*c* 0.20, CHCl<sub>3</sub>)

Source of chirality: L-proline methyl ester

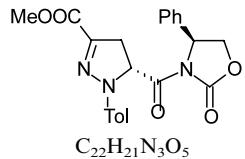
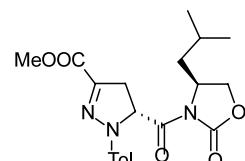
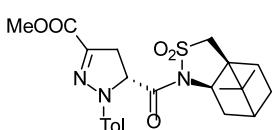
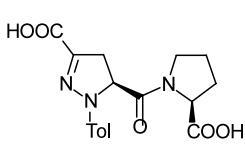
Absolute configuration: 5*R*

1-(4-Methylphenyl)-3-methoxycarbonyl-5-(R)-[1-(2-(S)-benzyloxycarbonyl)pyrrolidino]carbonyl-4,5-dihydropyrazole

 $[\alpha]_D^{25} = +76.3$  (*c* 0.19, CHCl<sub>3</sub>)

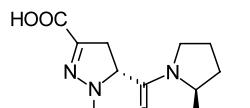
Source of chirality: L-proline benzyl ester

Absolute configuration: 5*R*

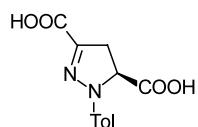
1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*R*)-[1-(2-oxo-5-(*S*)-phenyl-4,5-dihydro)oxazolo]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -183.2$  (*c* 0.13, CHCl<sub>3</sub>)Source of chirality: 4-(*S*)-(+) -phenyl-2-oxazolidinoneAbsolute configuration: 5*R*1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*S*)-[1-(2-oxo-5-(*S*)-isobutyl-4,5-dihydro)oxazolo]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = +300.0$  (*c* 0.22, CHCl<sub>3</sub>)Source of chirality: 4-(*S*)-(+) -isobutyl-2-oxazolidinoneAbsolute configuration: 5*R*1-(4-Methylphenyl)-3-methoxycarbonyl-5-(*S*)-[N-(1*S*,2*R*)-2,10-camphorsultamo]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -7.9$  (*c* 0.35, CHCl<sub>3</sub>)Source of chirality: (1*S*,2*R*)-(−)-2,10-camphorsultamAbsolute configuration: 5*R*1-(4-Methylphenyl)-3-carboxy-5-(*S*)-[1-(2-(*S*)-carboxy)pyrrolidino]carbonyl-4,5-dihydropyrazole $[\alpha]_D^{25} = -227.0$  (*c* 0.28, CHCl<sub>3</sub>)

Source of chirality: chiral precursor

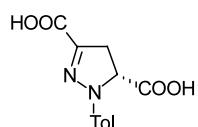
Absolute configuration: 5*S*

 $C_{17}H_{19}N_3O_5$ 1-(4-Methylphenyl)-3-carboxy-5-(*R*)-[1-(2-(*S*)-carboxy)pyrrolidino]carbonyl]-4,5-dihdropyrazole $[\alpha]_D^{25} = +109.0$  (*c* 0.10, CHCl<sub>3</sub>)

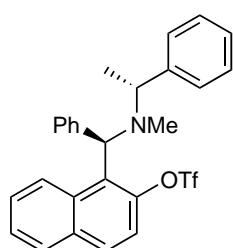
Source of chirality: chiral precursor

Absolute configuration: 5*R* $C_{12}H_{12}N_2O_4$ 1-(4-Methylphenyl)-3-carboxy-5-(*S*)-carboxy-4,5-dihdropyrazole $[\alpha]_D^{25} = +5.5$  (*c* 0.40, DMSO)

Source of chirality: chiral precursor

Absolute configuration: 5*S* $C_{12}H_{12}N_2O_4$ 1-(4-Methylphenyl)-3-carboxy-5-(*R*)-carboxy-4,5-dihdropyrazole $[\alpha]_D^{25} = -5.8$  (*c* 0.42, DMSO)

Source of chirality: chiral precursor

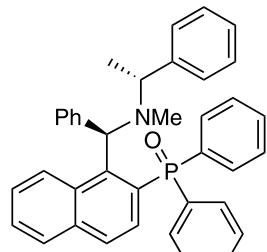
Absolute configuration: 5*R* $C_{27}H_{24}F_3NO_3S$ 

1-{(R)-[Methyl((1'R)-1'-phenylethyl)amino]phenylmethyl}naphthalen-2-yl trifluoromethanesulfonate

 $[\alpha]_D^{20} = -48.1$  (*c* 0.57, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

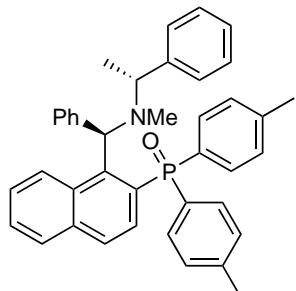
Absolute configuration: *R,R*

 $C_{38}H_{34}NOP$ 

{(R)-[2-(Diphenylphosphinoyl)naphthalen-1-yl]phenylmethyl}methyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +132.9$  (*c* 0.525, CHCl<sub>3</sub>)

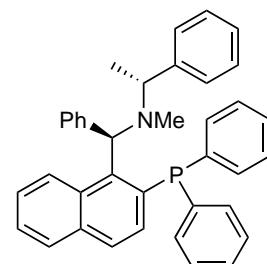
Source of chirality: synthesis from enantiomerically pure starting material

Absolute configuration: *R,R* $C_{40}H_{38}NOP$ 

{(R)-[2-(Di-p-tolylphosphinoyl)naphthalen-1-yl]phenylmethyl}methyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +139.5$  (*c* 0.555, CHCl<sub>3</sub>)

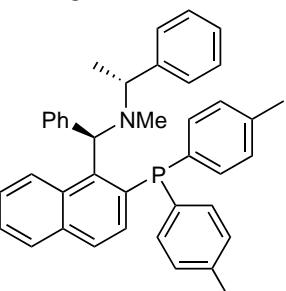
Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R* $C_{38}H_{34}NP$ 

{(R)-[2-(Diphenylphosphanyl)naphthalen-1-yl]phenylmethyl}methyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +135$  (*c* 0.285, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

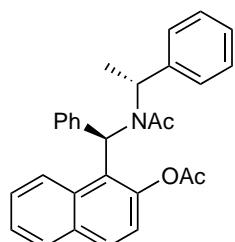
Absolute configuration: *R,R* $C_{40}H_{38}NP$ 

{(R)-[2-(Di-p-tolylphosphanyl)naphthalen-1-yl]phenylmethyl}methyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +161$  (*c* 0.19, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

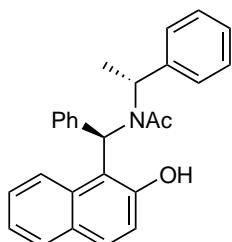
Absolute configuration: *R,R*

 $C_{29}H_{27}NO_3$ 

1-{(R)-[Acetyl((1'R)-1'-phenylethyl)amino]phenylmethyl}naphthalen-2-yl acetate

 $[\alpha]_D^{20} = +73.4$  (*c* 0.42, CHCl<sub>3</sub>)

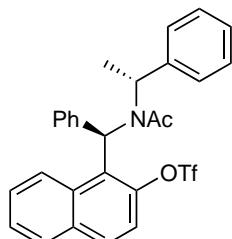
Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R* $C_{27}H_{25}NO_2$ 

N-[(R)-(2-Hydroxynaphthalen-1-yl)phenylmethyl]-N-((1'R)-1'-phenylethyl)acetamide

 $[\alpha]_D^{20} = -509.2$  (*c* 0.515, CHCl<sub>3</sub>)

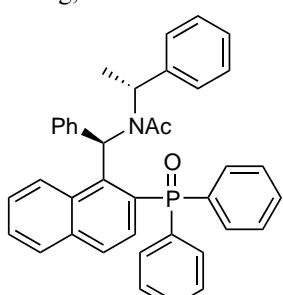
Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R* $C_{28}H_{24}F_3NO_4S$ 

1-{(R)-[Acetyl((1'R)-1'-phenylethyl)amino]phenylmethyl}naphthalen-2-yl trifluoromethanesulfonate

 $[\alpha]_D^{20} = +81.7$  (*c* 0.61, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

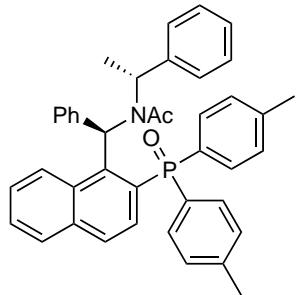
Absolute configuration: *R,R* $C_{39}H_{34}NO_2P$ 

N-{(R)-[2-(Diphenylphosphinoyl)naphthalen-1-yl]phenylmethyl}-N-((1'R)-1'-phenylethyl)acetamide

 $[\alpha]_D^{20} = +233.5$  (*c* 0.56, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

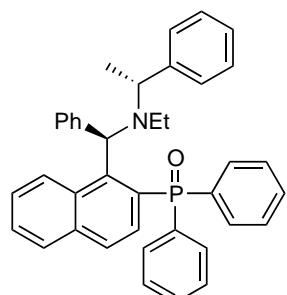
Absolute configuration: *R,R*

 $C_{41}H_{38}NO_2P$ 

{(R)-[2-(Di-p-tolylphosphinoyl)naphthalen-1-yl]phenylmethyl}-N-((1'R)-1'-phenylethyl)acetamide

 $[\alpha]_D^{20} = +203.2$  (*c* 0.57, CHCl<sub>3</sub>)

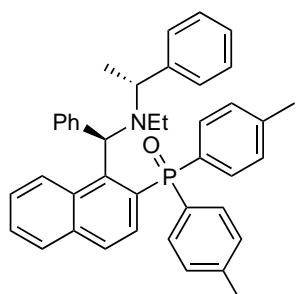
Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R* $C_{39}H_{36}NOP$ 

{(R)-[2-(Diphenylphosphinoyl)naphthalen-1-yl]phenylmethyl}ethyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +57.9$  (*c* 0.535, CHCl<sub>3</sub>)

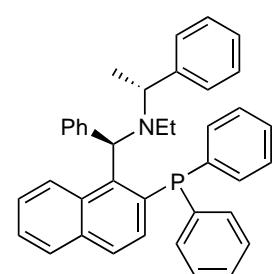
Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R* $C_{41}H_{40}NOP$ 

{(R)-[2-(Di-p-tolylphosphinoyl)naphthalen-1-yl]phenylmethyl}ethyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = +66.9$  (*c* 0.495, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

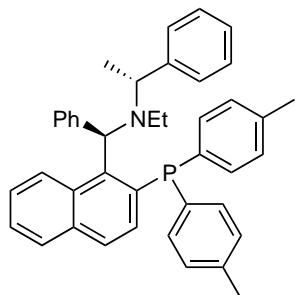
Absolute configuration: *R,R* $C_{39}H_{36}NP$ 

{(R)-[2-(Diphenylphosphanyl)naphthalen-1-yl]phenylmethyl}ethyl((1'R)-1'-phenylethyl)amine

 $[\alpha]_D^{20} = -25.9$  (*c* 0.525, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R*

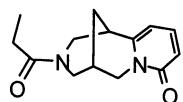


C<sub>41</sub>H<sub>40</sub>NP  
 {(R)-[2-(Di-p-tolylphosphanyl)naphthalen-1-yl]phenylmethyl}ethyl((1'R)-1'-phenylethyl)amine

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +8.4 (*c* 0.515, CHCl<sub>3</sub>)

Source of chirality: enantiomerically pure starting material

Absolute configuration: *R,R*



C<sub>14</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub>

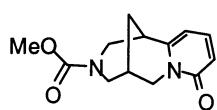
(1*R*,5*S*)-3-Propionyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -241 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>13</sub>H<sub>16</sub>N<sub>2</sub>O<sub>3</sub>

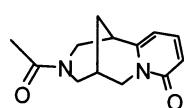
(1*R*,5*S*)-3-Carbomethoxy-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -209 (*c* 0.77, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>13</sub>H<sub>16</sub>N<sub>2</sub>O<sub>2</sub>

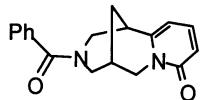
(1*R*,5*S*)-3-Acetyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -200 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>18</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub>

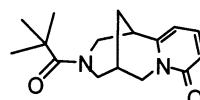
(1*R*,5*S*)-3-Benzoyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -277 (*c* 1.02, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>16</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub>

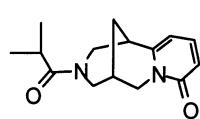
(1*R*,5*S*)-3-(2,2-Dimethylpropionyl)-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -261 (*c* 0.95, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>15</sub>H<sub>20</sub>N<sub>2</sub>O<sub>2</sub>

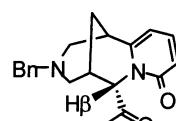
(1*R*,5*S*)-3-(2-Methylpropionyl)-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -168 (*c* 0.28, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*



C<sub>21</sub>H<sub>24</sub>N<sub>2</sub>O<sub>2</sub>

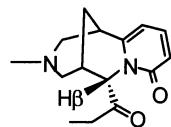
(1*R*,5*S*,6*S*)-3-Benzyl-6-propionyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -284 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



C<sub>15</sub>H<sub>20</sub>N<sub>2</sub>O<sub>2</sub>

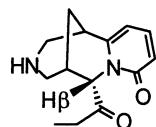
(1*R*,5*S*,6*S*)-3-Methyl-6-propionyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -333 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



C<sub>14</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub>

(1*R*,5*S*,6*S*)-6-Propionyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -96 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



C<sub>20</sub>H<sub>22</sub>N<sub>2</sub>O<sub>3</sub>

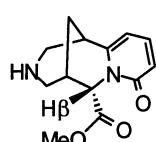
(1*R*,5*S*,6*S*)-3-Benzyl-8-oxo-1,3,4,5,6,8-hexahydro-2*H*-1,5-methanopyrido[1,2-*a*][1,5]diazocin-6-carboxylic acid methyl ester

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -318 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



C<sub>13</sub>H<sub>16</sub>N<sub>2</sub>O<sub>3</sub>

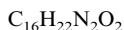
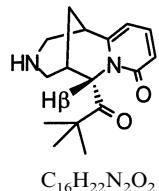
(1*R*,5*S*,6*S*)-8-Oxo-1,3,4,5,6,8-hexahydro-2*H*-1,5-methanopyrido[1,2-*a*][1,5]diazocin-6-carboxylic acid methyl ester

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -151 (*c* 1.12, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



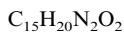
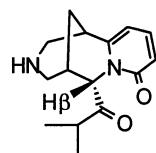
(1*R*,5*S*,6*S*)-6-(2,2-Dimethylpropionyl)-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -53 (*c* 0.7, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



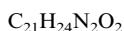
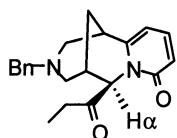
(1*R*,5*S*,6*S*)-6-(2-Methylpropionyl)-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -52 (*c* 0.75, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*S*



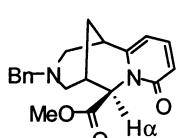
(1*R*,5*S*,6*R*)-3-Benzyl-6-propionyl-1,2,3,4,5,6-hexahydro-1,5-methanopyrido[1,2-*a*][1,5]diazocin-8-one

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -228 (*c* 1, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*R*



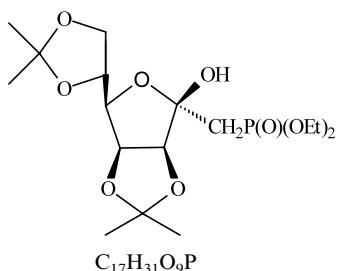
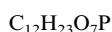
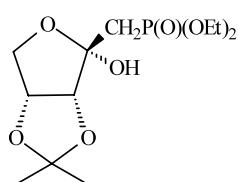
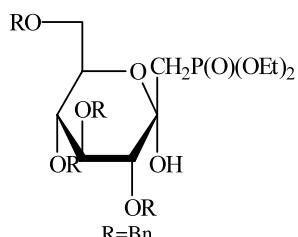
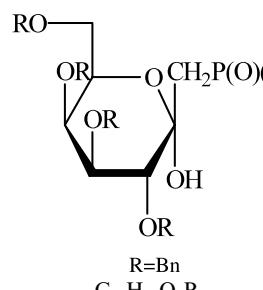
(1*R*,5*S*,6*R*)-3-Benzyl-8-oxo-1,3,4,5,6,8-hexahydro-2*H*-1,5-methanopyrido[1,2-*a*][1,5]diazocin-6-carboxylic acid methyl ester

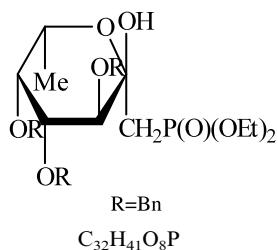
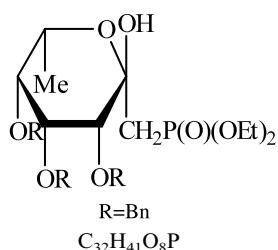
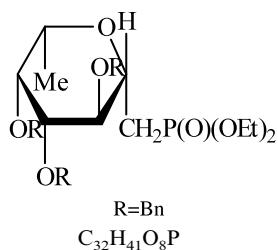
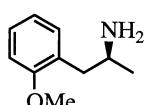
E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -141 (*c* 0.45, CHCl<sub>3</sub>)

Source of chirality: (-)-cytisine

Absolute configuration: 1*R*,5*S*,6*R*

Diethyl (di-*O*-isopropylidene-1-deoxy-*D-manno*-heptulofuranosyl)phosphonate $M_p = 88\text{--}89^\circ\text{C}$  (petroleum ether–ethyl acetate) $[\alpha]_D = +9.5$  ( $c$  11.0 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3:5,6-di-*O*-isopropylidene-*D-mannono*-1,4-lactoneDiethyl (*O*-isopropylidene-1-deoxy-*D-erythro*-hexulofuranosyl)phosphonate $[\alpha]_D = -38.05$  ( $c$  10.8 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3-*O*-isopropylidene-*D*-erythronolactoneDiethyl (tetra-*O*-benzyl-1-deoxy-*D-gluco*-heptulopyranosyl)phosphonate $[\alpha]_D = -8.7$  ( $c$  13.3 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3,4,6-tetra-*O*-benzyl-*D*-glucono-1,5-lactoneDiethyl (tetra-*O*-benzyl-1-deoxy-*D-galacto*-heptulopyranosyl)phosphonate $[\alpha]_D = +9.7$  ( $c$  10.5 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3,4,6-tetra-*O*-benzyl-*D*-galactono-1,5-lactone

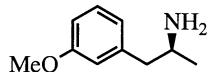
Diethyl (tri-*O*-benzyl-1-deoxy-*L-fuco*-heptulopyranosyl)phosphonate $[\alpha]_D = +5.53$  (*c* 4.8 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3,4-tri-*O*-benzyl-*L-fucono*-1,5-lactoneDiethyl (tri-*O*-benzyl-1-deoxy-*L-rhamno*-heptulopyranosyl)phosphonate $[\alpha]_D = -15.2$  (*c* 6.8 mg/mL,  $\text{CHCl}_3$ )Source of chirality: 2,3,4-tri-*O*-benzyl-*L-rhamno*-1,5-lactoneDiethyl (tri-*O*-benzyl-2,6-anhydro-1-deoxy- $\beta$ -*L-fuco*-heptopyranosyl)phosphonate $[\alpha]_D = -25.45$  (*c* 12.2 mg/mL,  $\text{CHCl}_3$ )Source of chirality: tri-*O*-benzyl-*L-fucono*-1,5-lactone $\text{C}_{10}\text{H}_{15}\text{NO}$   
(*S*)-1-(*o*-Methoxyphenyl)propan-2-amine

E.e. 93% (HPLC, Chiralcel-OD)

 $[\alpha]_D^{20} = +31.8$  (*c* 1.00,  $\text{CHCl}_3$ )

Source of chirality: enzymatic resolution

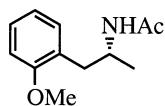
Absolute configuration: *S*

 $C_{10}H_{15}NO$ (S)-1-(*m*-Methoxyphenyl)propan-2-amine

E.e. 96% (HPLC, Chiralcel-OD)

 $[\alpha]_D^{20} = +33.5$  (*c* 1.00,  $CHCl_3$ )

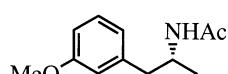
Source of chirality: enzymatic resolution

Absolute configuration: *S* $C_{12}H_{17}NO_2$ (R)-*N*-[1-(*o*-Methoxyphenyl)propan-2-yl]ethanamide

Enantiopure (HPLC, Chiralcel-OD)

 $[\alpha]_D^{20} = +29.8$  (*c* 1.05,  $CHCl_3$ )

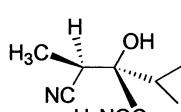
Source of chirality: enzymatic resolution

Absolute configuration: *R* $C_{12}H_{17}NO_2$ (R)-*N*-[1-(*m*-Methoxyphenyl)propan-2-yl]ethanamide

E.e. 98% (HPLC, Chiralcel-OD)

 $[\alpha]_D^{20} = +37.6$  (*c* 1.00,  $CHCl_3$ )

Source of chirality: enzymatic resolution

Absolute configuration: *R* $C_8H_{14}N_2O_2$ (2*R*,3*R*)-3-Cyano-2-hydroxy-2-isopropylbutanamide

E.e. &gt;97%

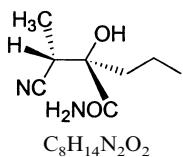
 $[\alpha]_D = -9.57$  (*c* 0.31, acetone)

Source of chirality: stereoselective synthesis

Absolute configuration: 2*R*,3*R*

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(2*R*)-2-[(1*S*)-Cyanoethyl]-2-hydroxy-2-pentanamide

E.e. >97%

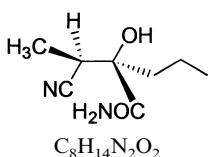
$[\alpha]_D = +20.6$  (*c* 0.4, acetone)

Source of chirality: stereoselective synthesis

Absolute configuration: 2*R*,1'*S*

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(2*R*)-2-[(1*R*)-Cyanoethyl]-2-hydroxy-2-pentanamide

E.e. >97%

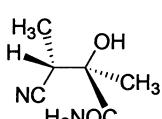
$[\alpha]_D = -14.2$  (*c* 0.5, acetone)

Source of chirality: stereoselective synthesis

Absolute configuration: 2*R*,1'*R*

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(2*R*,3*S*)-3-Cyano-2-hydroxy-2-methylbutanamide

E.e. >97%

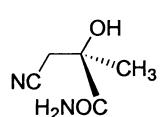
$[\alpha]_D = +54.2$  (*c* 0.2, acetone)

Source of chirality: stereoselective synthesis

Absolute configuration: 2*R*,3*S*

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(2*R*)-3-Cyano-2-hydroxy-2-methylpropanamide

E.e. >97%

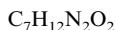
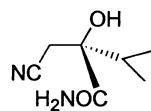
$[\alpha]_D = -11.8$  (*c* 0.15, CHCl<sub>3</sub>)

Source of chirality: stereoselective synthesis

Absolute configuration: 2*R*

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(2S)-3-Cyano-2-hydroxy-2-methylpropanamide

E.e. >97%

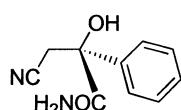
[ $\alpha$ ]<sub>D</sub> = -13.4 (*c* 0.09, CHCl<sub>3</sub>)

Source of chirality: stereoselective synthesis

Absolute configuration: 2S

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(2S)-3-Cyano-2-hydroxy-2-phenylpropanamide

E.e. >97%

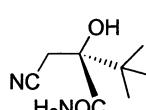
[ $\alpha$ ]<sub>D</sub> = -23.2 (*c* 0.12, CHCl<sub>3</sub>)

Source of chirality: stereoselective synthesis

Absolute configuration: 2S

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(2S)-2-Cyanomethyl-3,3-dimethyl-2-hydroxybutanamide

E.e. >97%

[ $\alpha$ ]<sub>D</sub> = -14.7 (*c* 0.2, CHCl<sub>3</sub>)

Source of chirality: stereoselective synthesis

Absolute configuration: 2S

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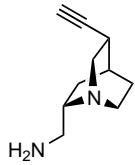


(1S,2S,4S,5R)-2-(Aminomethyl)-5-ethyl-1-azabicyclo[2.2.2]octane

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -28.1 (*c* 1, EtOH)

Source of chirality: homochiral starting material

Absolute configuration: 1S,2S,4S,5R



$C_{10}H_{16}N_2$   
( $1S,2S,4S,5R$ )-2-(Aminomethyl)-5-ethynyl-1-azabicyclo[2.2.2]octane

$[\alpha]_D^{20} = +14.3$  ( $c$  1, EtOH)

Source of chirality: homochiral starting material

Absolute configuration: 1S,2S,4S,5R

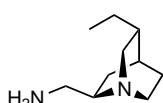


$C_{10}H_{16}N_2$   
( $1S,2R,4S,5R$ )-2-(Aminomethyl)-5-ethynyl-1-azabicyclo[2.2.2]octane

$[\alpha]_D^{20} = +168.7$  ( $c$  1, EtOH)

Source of chirality: homochiral starting material

Absolute configuration: 1S,2R,4S,5R

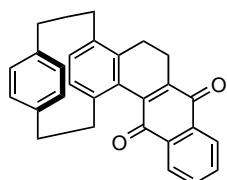


$C_{10}H_{20}N_2$   
( $1S,2R,4S,5R$ )-2-(Aminomethyl)-5-ethyl-1-azabicyclo[2.2.2]octane

$[\alpha]_D^{20} = +143.3$  ( $c$  1, EtOH)

Source of chirality: homochiral starting material

Absolute configuration: 1S,2R,4S,5R

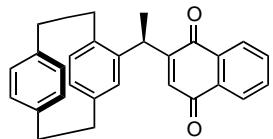


$C_{28}H_{22}O_2$   
( $R$ )-(-)-2,3,8,9,11,12-Hexahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

$[\alpha]_D = -820$  ( $c$  0.096,  $CHCl_3$ )

Source of chirality: (*S*)-(+)4-ethenyl[2.2]-paracyclophe

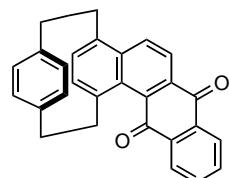


C<sub>28</sub>H<sub>24</sub>O<sub>2</sub>  
(S,R)-(+)-2-[1-Tricyclo[8.2.2.2<sup>4,7</sup>]hexadeca-1(12),4,6,10,13,15-hexaen-5-ylethyl]naphthoquinone

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = +267 (*c* 1.100, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophe

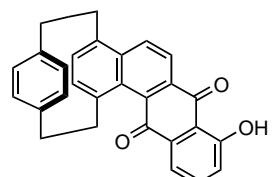


C<sub>28</sub>H<sub>20</sub>O<sub>2</sub>  
(R)-(+)-2,3,8,9,-Tetrahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = +448 (*c* 0.068, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophe

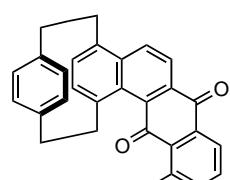


C<sub>28</sub>H<sub>20</sub>O<sub>3</sub>  
(R)-(+)-14-Hydroxy-2,3,8,9-tetrahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = +219 (*c* 0.134, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophe

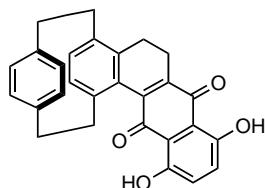


C<sub>28</sub>H<sub>20</sub>O<sub>3</sub>  
(R)-(+)-17-Hydroxy-2,3,8,9-tetrahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = +186 (*c* 0.199, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophe



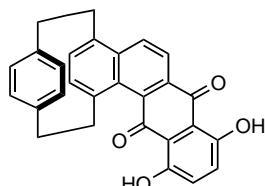
C<sub>28</sub>H<sub>22</sub>O<sub>4</sub>

(R)-(-)-14,17-Dihydroxy-2,3,8,9,11,12-hexahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = -844 (*c* 1.2 × 10<sup>-3</sup>, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophane



C<sub>28</sub>H<sub>20</sub>O<sub>4</sub>

(R)-(+)-14,17-Dihydroxy-2,3,8,9-tetrahydro-1,10:4,7-diethenocyclododeca[a]anthracene-13,18-dione

E.e. >99%

[ $\alpha$ ]<sub>D</sub> = +1193 (*c* 0.015, CHCl<sub>3</sub>)

Source of chirality: (S)-(+)-4-ethenyl[2.2]-paracyclophane